

# Proposed Government Street Road Diet- Historical and Predictive Safety Performance

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# Definition of Road Diet

“Conversion of a four-lane undivided road to a three lane undivided road made up of two through lanes and center two-way-left-turn-lane.”  
- Road Diet Informational Guide



# Existing Cross Section

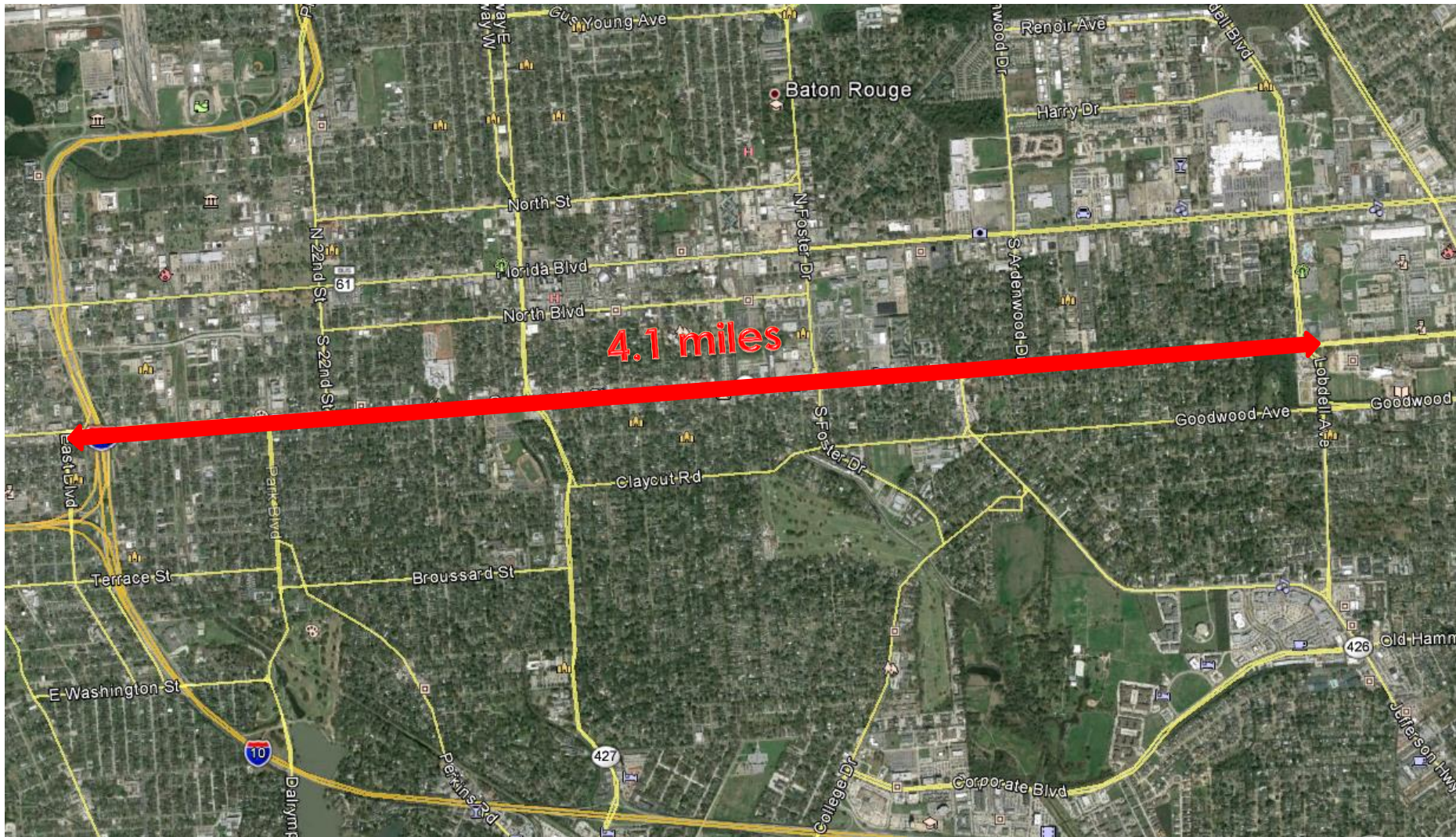


# Proposed Cross Section





# Limits of Proposed Project



# BENEFITS OF A ROAD DIET

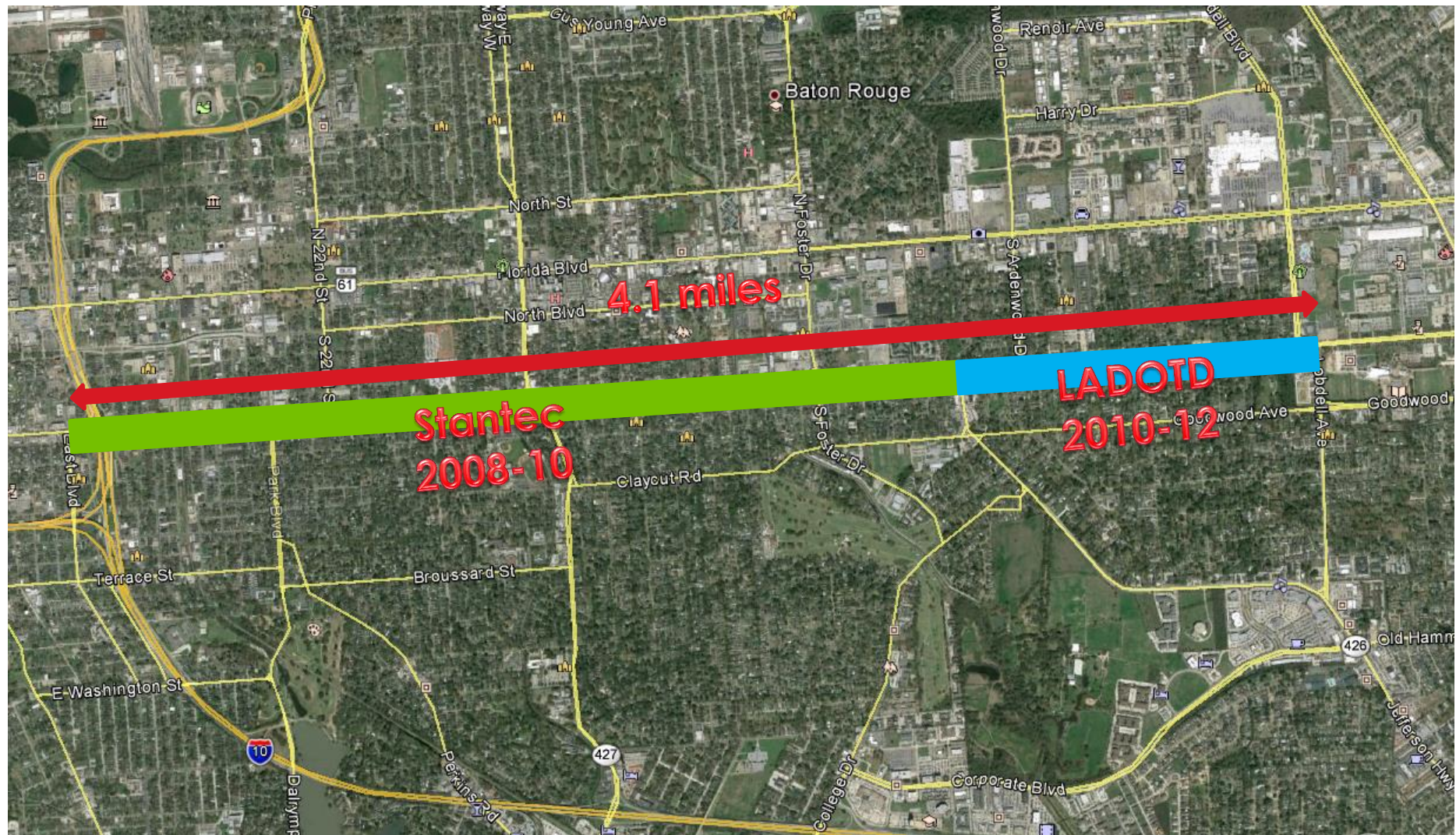
- Reclaimed space can be used to provide improvements such as:
  - ❖ bike lanes,
  - ❖ on-street parking or
  - ❖ better transit stops
- Left turners do not block through movements
- TWTL provides better access for side streets and driveways

# BENEFITS OF A ROAD DIET

- Safer roadway for vehicles and pedestrians
  - ❖ Reduce the number of conflict points
  - ❖ Pedestrian cross fewer lanes

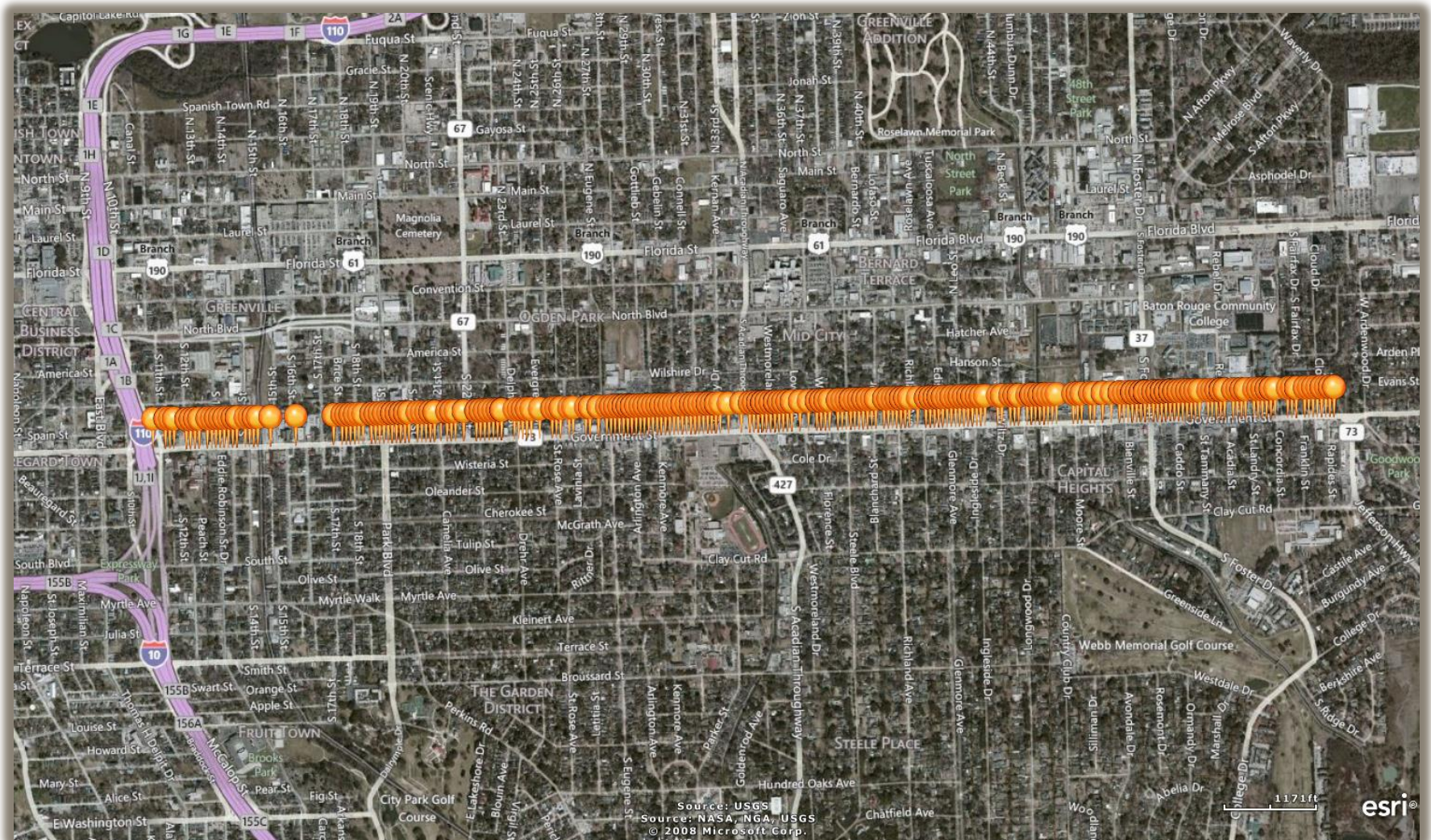


# Historical Safety Analysis



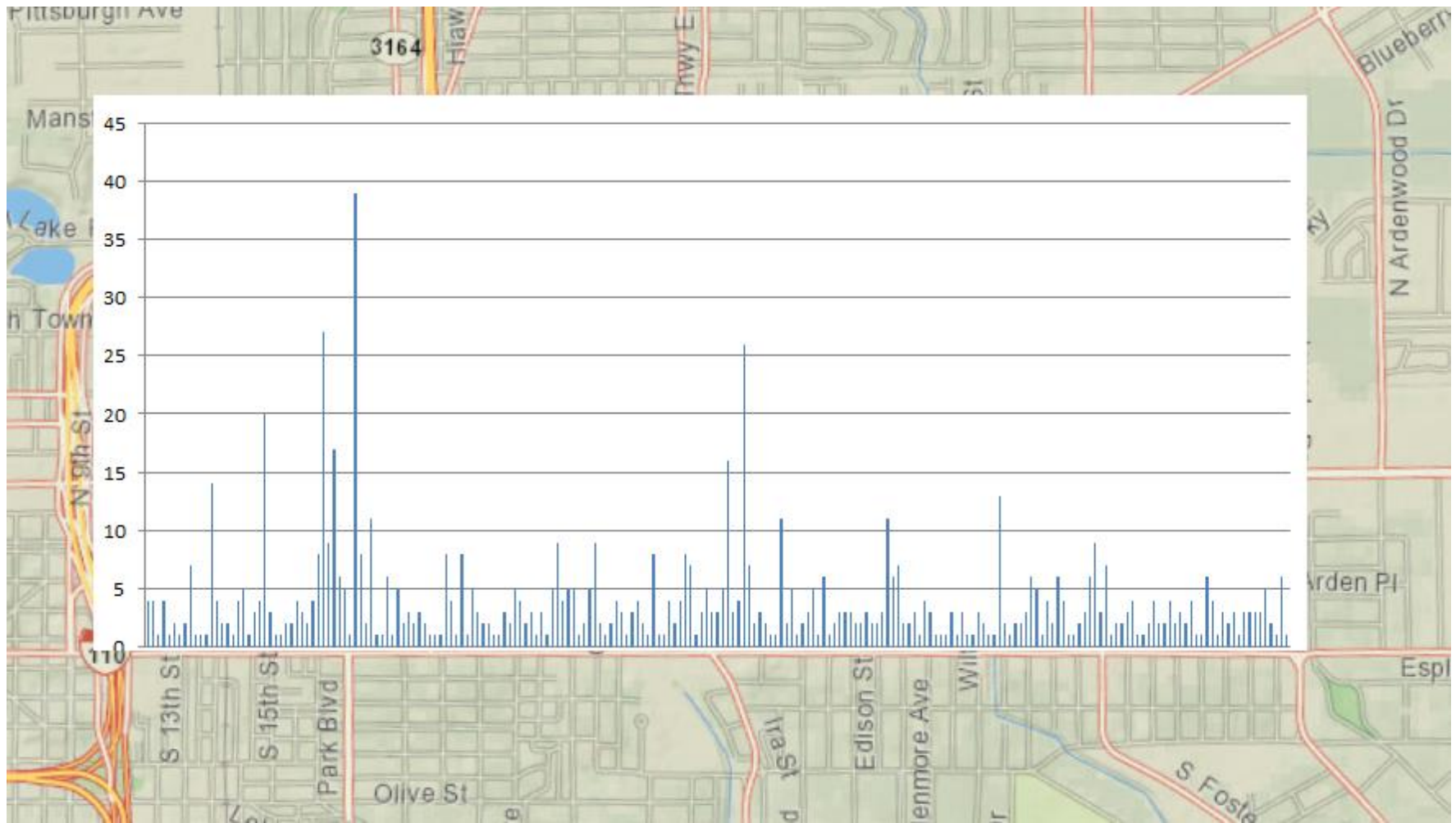


# I-110 Interchange to Jefferson Hwy using 2008-2010 crash data





# Spatial distribution of crashes (2008-2010)





# Crash Analysis (2008-2010)

Parameters highlighted in yellow are “overrepresented” in the data set i.e. proportionally higher compared to the statewide average for roadway classification

Type of Crash	Crash Frequency	Percentage	Statewide Average
Fatal Crashes	0	0.00%	0.20%
Injury Crashes	222	27.34%	30.10%
PDO Crashes	590	72.66%	69.70%

Type of Collision	Crash Frequency	Percentage	Statewide Average
Head on	6	0.74%	0.98%
Left Turn-Angle	8	0.99%	3.86%
Left Turn-Opposite Direction	73	8.99%	6.11%
Left Turn-Same Direction	14	1.72%	2.04%
Non Collision w/ MV	18	2.22%	4.49%
Other	60	7.39%	10.14%
Rear End	320	39.41%	37.71%
Right Turn-Angle	9	1.11%	17.61%
Right Turn-Opposite Direction	1	0.12%	0.40%
Right Angle	172	21.18%	17.61%
Side Swipe - Opposite Direction	9	1.11%	0.90%
Side Swipe -Same Direction	122	15.02%	14.16%

# Crash Analysis (2010-2012) Jefferson Hwy to Ardenwood Drive

Severity	Number of Crashes	Jefferson Hwy to Ardenwood Dr.	Urban State Average
PDO	8	66.67%	0.20%
Fatal	0	0.00%	29.20%
Injury	4	33.33%	70.60%
Number Fatalities	0	0.00%	0.20%
Number Injured	7	58.33%	48.10%

Type of Collision	Number of Crashes	Jefferson Hwy to Ardenwood Dr.	Urban State Average
Non Collision w/ MV	1	8.33%	3.86%
Rear End	4	33.33%	39.85%
Head On	0	0.00%	0.96%
Right Angle	3	25.00%	18.25%
Left Turn Angle	0	0.00%	3.16%
Left Turn Opposite Direction	0	0.00%	7.27%
Left Turn Same Direction	1	8.33%	2.26%
Right Turn Angle	0	0.00%	2.15%
Right Turn Opposite Direction	0	0.00%	0.48%
Side Swipe Same Direction	3	25.00%	13.02%
Side Swipe Opposite Direction	0	0.00%	1.02%
Other	0	0.00%	7.44%



# Crash Analysis (2010-2012) Ardenwood Drive to Lobdell Avenue

Severity	Number of Crashes	Ardenwood Dr. to Lobdell Ave.	Urban State Average
PDO	26	76.47%	0.20%
Fatal	0	0.00%	29.20%
Injury	8	23.53%	70.60%
Number Fatalities	0	0.00%	0.20%
Number Injured	17	50.00%	48.10%

Type of Collision	Number of Crashes	Ardenwood Dr. to Lobdell Ave.	Urban State Average
Non Collision w/ MV	1	2.94%	3.86%
Rear End	11	91.67%	39.85%
Head On	1	8.33%	0.96%
Right Angle	7	58.33%	18.25%
Left Turn Angle	1	8.33%	3.16%
Left Turn Opposite Direction	2	16.67%	7.27%
Left Turn Same Direction	0	0.00%	2.26%
Right Turn Angle	1	8.33%	2.15%
Right Turn Opposite Direction	0	0.00%	0.48%
Side Swipe Same Direction	7	58.33%	13.02%
Side Swipe Opposite Direction	0	0.00%	1.02%
Other	3	8.82%	7.44%

# Crash Rates - Abnormal crash locations (hotspots) are highlighted in red

Begin	End	Length	Total Crashes (3yrs)	ADT	VMT	Crash Rate (Crashes/MVM)	2x Statewide Average (Crashes/MVM)
Jefferson	Comm Col	0.314	65	21792	2497581	8.68	6.96
Comm Coll	Foster	0.162	78	20270	1198565	21.69	6.96
Foster	Edison	0.512	101	20015	3740403	9.00	6.96
Edison	Acadian	0.449	118	20221	3313919	11.87	6.96
Acadian	Hearthstone	0.121	15	20362	899288	5.56	6.96
Hearthstone	Eugene	0.221	49	19447	1568692	10.41	6.96
Eugene	S. 22nd	0.319	42	17753	2067071	6.77	6.96
S. 22nd	S. 21st	0.066	1	16954	408422	0.82	6.96
s. 21st	19th	0.134	22	16680	815819	8.99	6.96
19th	S 13th	0.399	44	15389	2241177	6.54	6.96
S.13th	I-110 Ramp	0.13	24	14608	693150	11.54	6.96

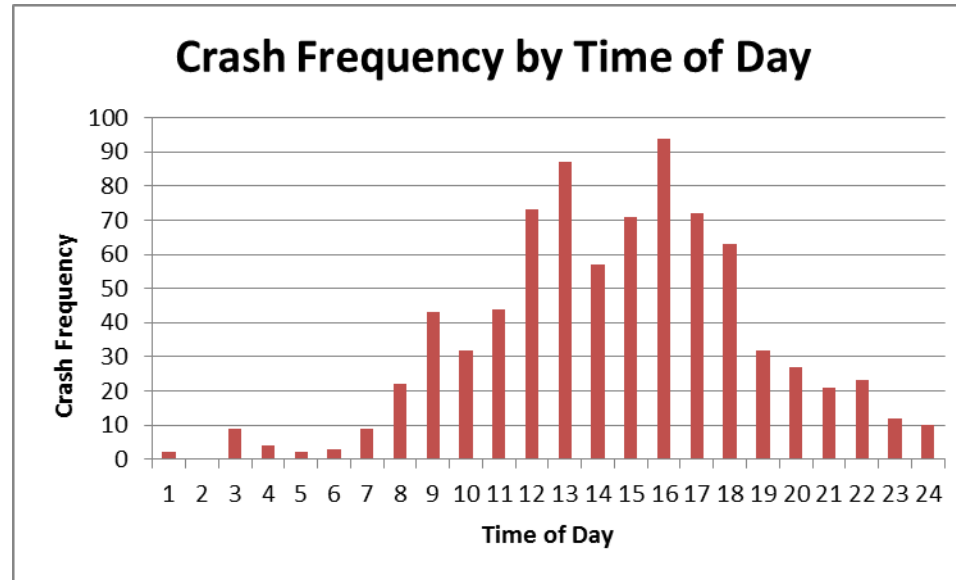
Data (2008-2010)

Segment	Total Crashes	AADT	Length	Crash Rate	2x State Avg.
GOVERNMENT(JEFFERSON HWY-TO-ARDENWOOD)	12	8419	0.2	6.51	2.34
GOVERNMENT(ARDENWOOD-TO-LOBDELL)	34	6283	0.92	5.37	2.34
Total =	46				

Data (2010-2012)



# Time of day crashes occurred (2008-2010)

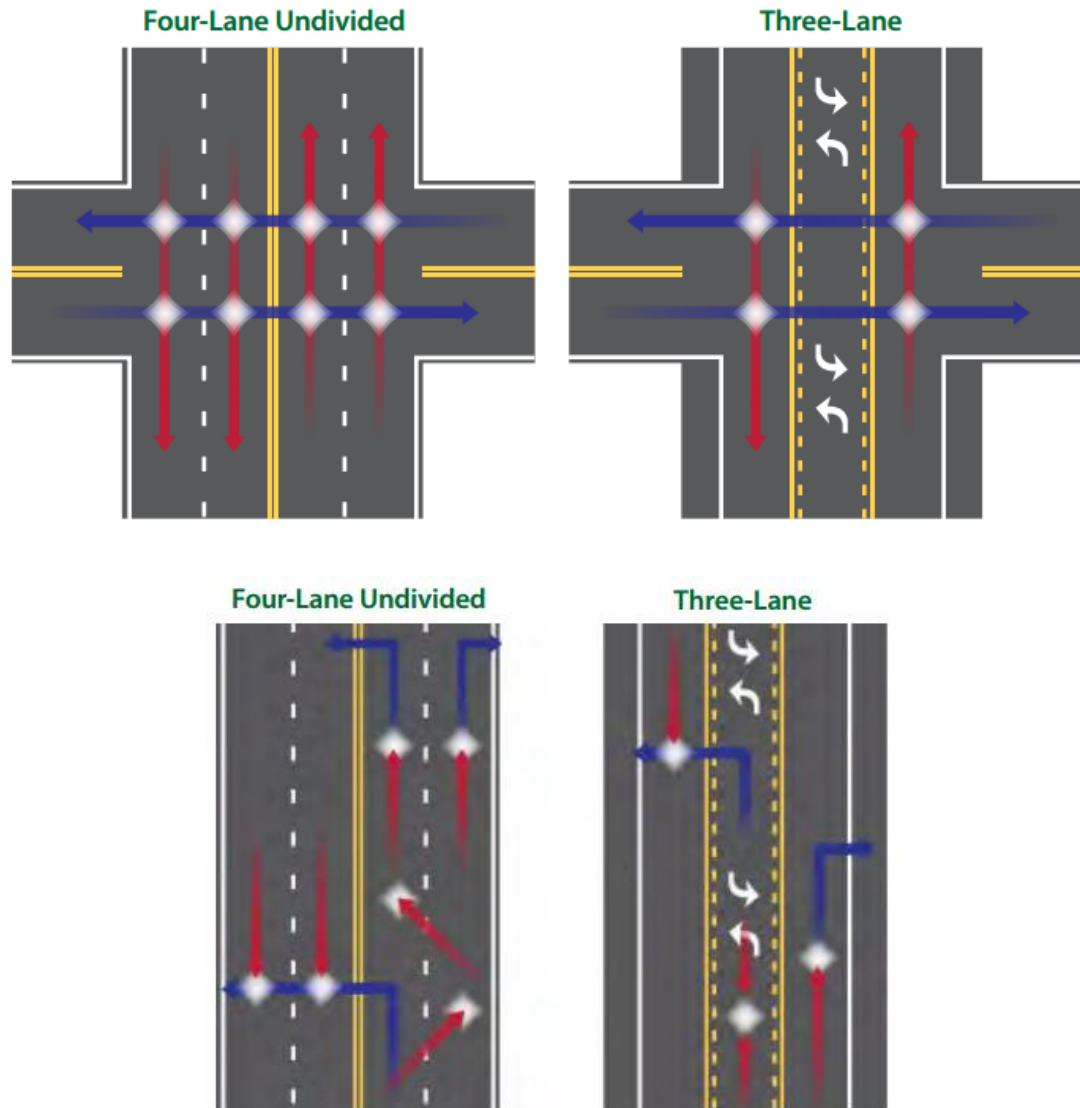


Crashes that occur during peak travel times can significantly reduce capacity and increase congestion

# How can we enhance the safety Performance of Government Street?

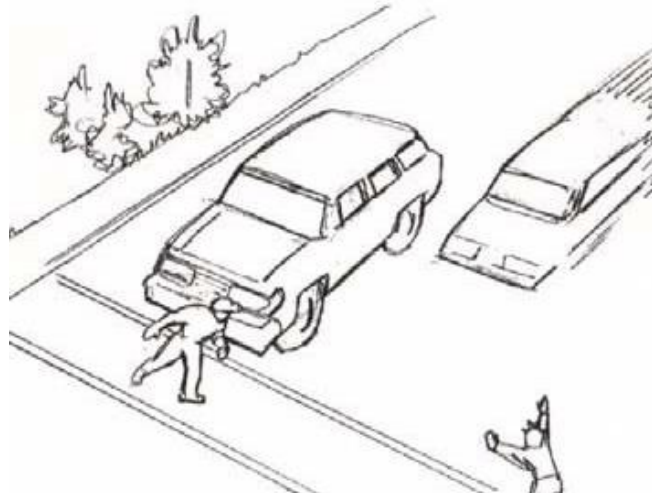
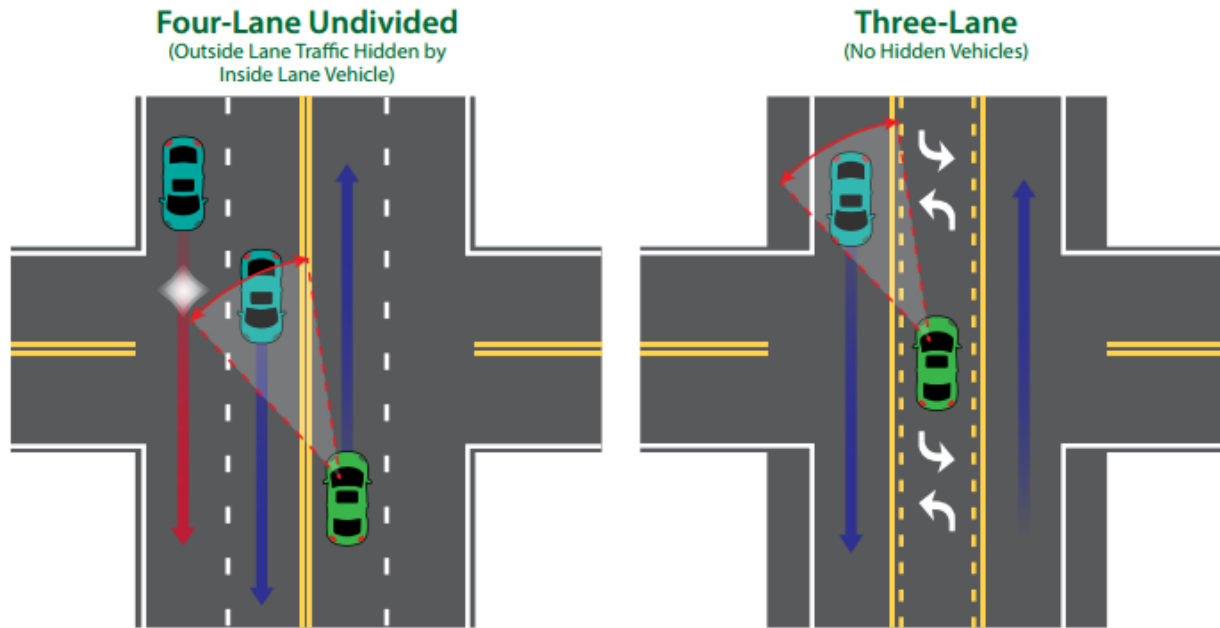


# Why Road Diets Are Safer





# Why Road Diets Are Safer



# Input on Alternatives

- LADOTD and City of Baton Rouge
- Local businesses and home owner's associations, potential developers
- CRPC, Mid City Redevelopment Alliance, and other planning organizations
- Schools & CATs provided info. on buses

# 2013 – Better Block Demonstration

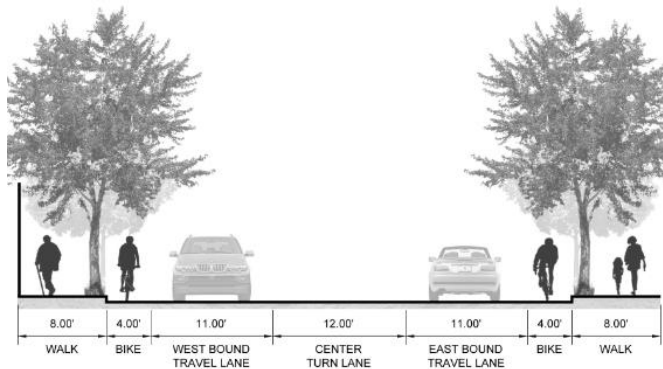




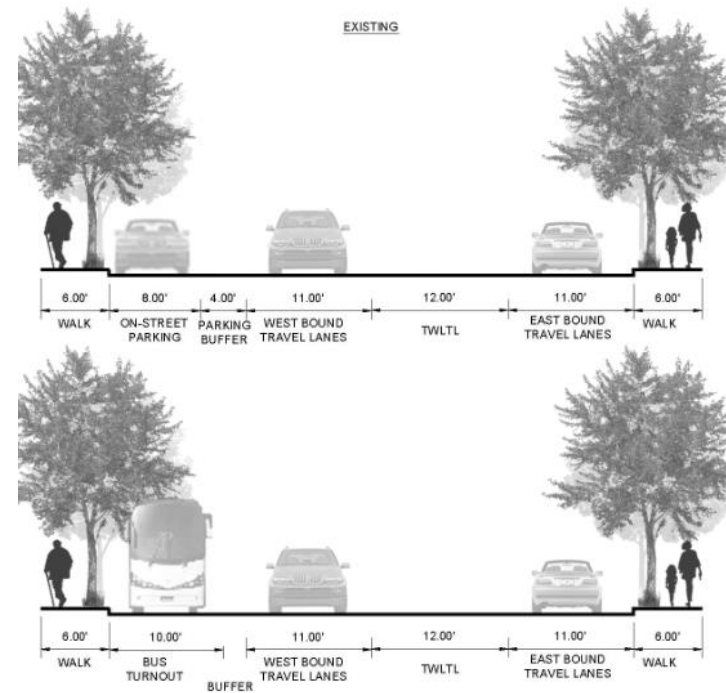
# Sample Road Diet Alternatives



EXISTING

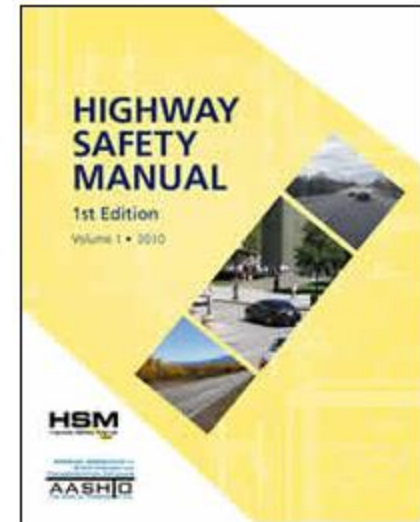


EXISTING

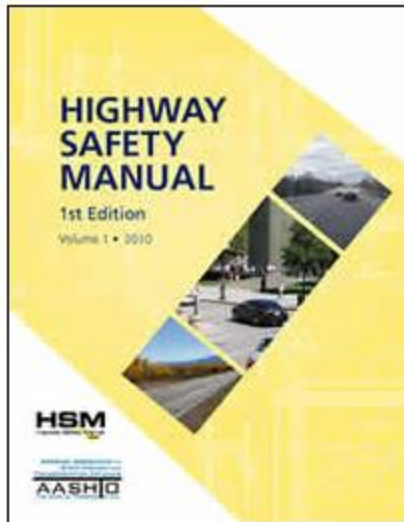


# PREDICTIVE SAFETY ANALYSES

- Methodology is based on the Highway Safety Manual developed from several innovative cooperative research initiated by FHWA
- HSM provides analytical tools for predicting impacts of projects/programs on safety performance



# PREDICTIVE SAFETY ANALYSES



$$N_{\text{predicted}} = \text{SPF} * (\text{CMF}_1 * \text{CMF}_2 * \dots * \text{CMF}_n) * C$$

SPF is Safety Performance Function

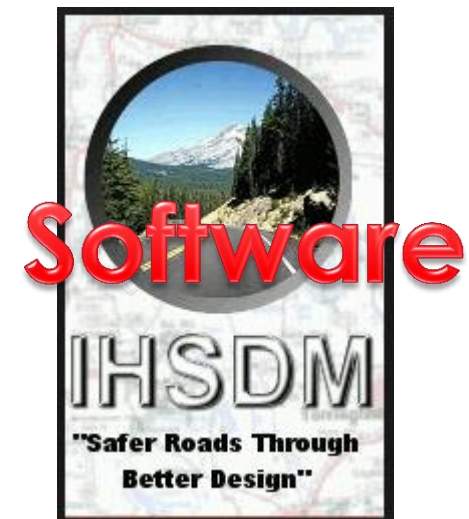
CMF is Crash Modification Factor

C is Calibration Factor

Empirical Bayes Method not applied due to change roadway cross-section

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
1	Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments														
2	General Information							Location Information							
3															
4	Analyst	CNA					Roadway	(LA 73) Government St							
5	Agency or Company	Stantec					Roadway Section	East Blvd to S 10th St							
6	Date Performed	November 2014					Jurisdiction	Baton Rouge, LA							
7								Analysis Year	2014						
8	Input Data							Base Conditions			Site Conditions				
9	Roadway type (2U, 3T, 4U, 4D, ST)							--			3T				
10	Length of segment, L (mi)							--			0.065				
11	AADT (veh/day)							AADT <sub>MAX</sub> = 32,900 (veh/day)			29,753				
12	Type of on-street parking (none/parallel/angle)							None			None				
13	Proportion of curb length with on-street parking							0			0				
14	Median width (ft) - for divided only							15			Not Present				
15	Lighting (present / not present)							Not Present			Present				
16	Auto speed enforcement (present / not present)							Not Present			Not Present				
17	Major commercial driveways (number)							--			0				
18	Minor commercial driveways (number)							--			3				
19	Major industrial / institutional driveways (number)							--			0				
20	Minor industrial / institutional driveways (number)							--			0				
21	Major residential driveways (number)							--			0				
22	Minor residential driveways (number)							--			0				
23	Other driveways (number)							--			0				
24	Speed Category							--			Posted Speed Greater than 30 mph				
25	Roadside fixed object density (fixed objects / mi)							0			5				
26	Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]							30			10				
27	Calibration Factor, Cr							1.00			0.14				

Worksheet



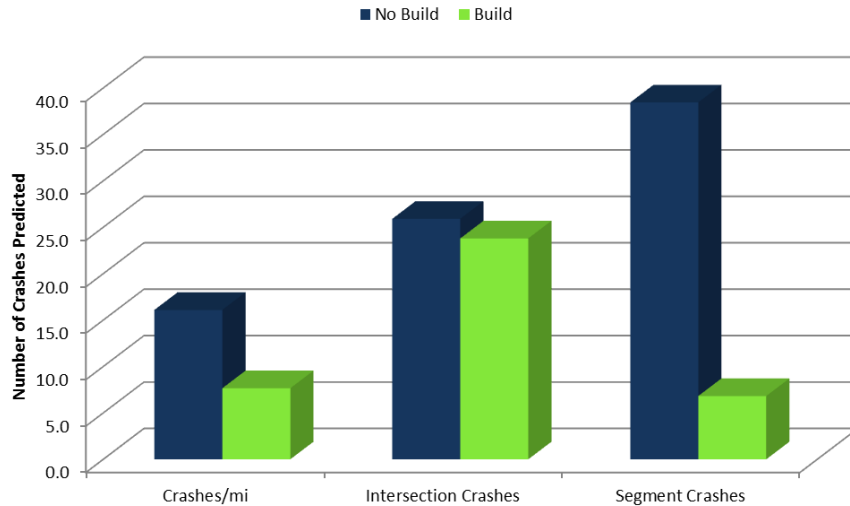


# Summary of HSM analysis

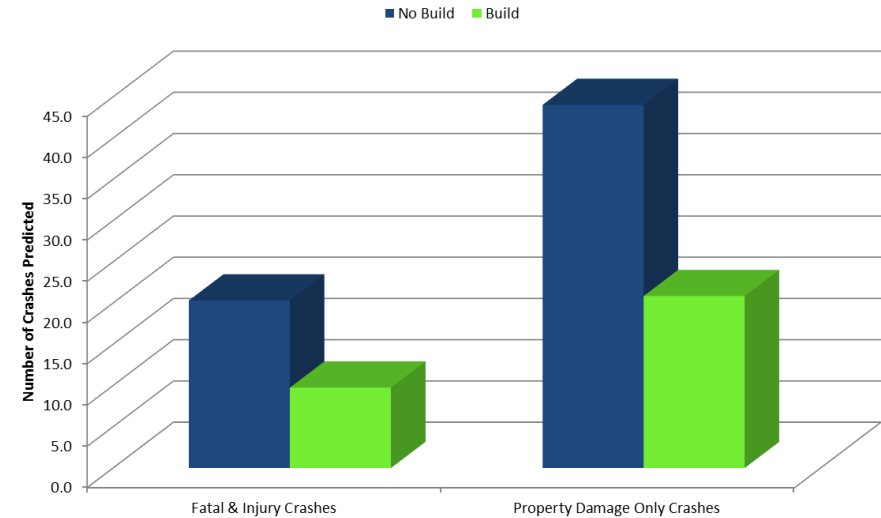
Year	HSM Crash Estimation						
	No Build	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	% Reduction
2014	61.2	29.1	29.3	29.3	36.9	36.9	39.7% - 52.4%
2015	62.8	27.3	30.1	30.1	37.8	37.9	39.6% - 56.5%
2016	64.3	30.6	30.8	30.8	38.8	38.8	39.7% - 52.4%

# Safety Analysis of Existing and Proposed Road Diet

Government Street Crash Prediction - Future Year (2016)



Government Street Predicted Crash Severity - Future Year (2016)



Existing Condition

16.1 Crashes/mi

52% reduction in total crashes  
82% reduction in segment crashes  
8% reduction in intersection crashes  
52% reduction in fatal/injury crashes  
52% reduction in PDO crashes

Preferred Alternative

7.7 Crashes/mi

# CONCLUSIONS OF SAFETY ANALYSES

Government Street has segments with crash rates greater than 2x the Statewide average for 4-lane sections (abnormal location)

Certain collision types are overrepresented in the crash data and the existing geometry is a contributory factor

When a road diet is implemented , reduction in crashes based on the predictive analyses estimated to be in the range of 39.7% to 52.4%

Reduction in crashes will also help improve congestion especially during AM and PM rush hours



# PROJECT HISTORY

- 2002 – Mid-City Redevelopment Alliance adopts the Government Street Master Action Plan (GoMAP)
- 2004 – Initial Government Street study of GoMAP recommendations
- 2005 – Hurricane Katrina
- 2008 – Mid-City Redevelopment Alliance re-initiates study to improve Government Street
- 2011 – FuturEBR unanimously adopted by Metro Council (Government Street identified as a key project)
- 2012 – MPO conducted a Stage 0
- 2013 – Better Block Demonstration
- 2014 – Mayor Kip Holden announces Government Street improvement project
- 2014 – Notice to Proceed

# Questions?